

1.0 INTRODUCTION

The Mooresville Regional Office (MRO) received numerous complaints from businesses near a galvanizing facility, Galvan Industries, in the town of Harrisburg, NC. These complaints describe odors, “acidic” gases, hazy smoke, and particulate deposition, which are believed to be emanating from the nearby galvanizing operation and are thought to be causing damage to buildings and motor vehicles. Assistance from the Toxics Protection Branch (TPB) was requested by the MRO to characterize chemical composition of the odors, hazy smoke and particulate deposits. After discussions with MRO staff and owners of property adjoining the facility, the study was carried out from August 2006 to August 2007, the results of which are presented in this report.

1.1 Background

Galvan Industries, Inc., in operation since the 1960’s, performs hot zinc galvanizing of steel and iron materials used for a wide range of products in order to provide protection to the metal against corrosion. As described by the MRO, the galvanizing process involves processes that include shot blasting, cleaning and degreasing with sodium hydroxide and sulfuric acid, pre-fluxing with a mixture of zinc chloride and ammonium chloride, and applying a zinc coating of iron and steel products in a kettle. The facility has typically operated sixteen hours per day (two shifts per day), six days per week, fifty-two weeks per year.

The main part of the facility is located in Cabarrus County, although the western part of the contiguous facility property, including the shot-blasting building, is located in Mecklenburg County. This area is reported as mixed zoning; a combination of commercial, light industrial, office, and residential land use. Many complaints have originated from owners of property adjacent to Galvan’s northern fence line. These properties consist of a commercial storage facility and an office complex. Highway 49 runs in an east to west direction to the north of these properties. A railroad line marks the southern border of the Galvan Industries location. A concrete mixing facility is located about a quarter mile to the southeast of Galvan Industries.

1.2 Study Design

The complaints received by the MRO consisted of unpleasant odors, hazy smoke, a rust-colored precipitate and experiences with burning sensations of the eyes, nose, throat and skin that some complainants associated with “acidic” vapors. Other observations noted damaged or dead